

FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

12. Record Descriptions:

a. Volume Record: The Volume Record shall be used to control the transfer of data that may not fit on a single disk. The first record in every disk used to store the data exchange file shall contain the Volume Record. The Volume Record shall sequentially identify the number of the data transfer disk(s). The Volume Record shall have the following format:

Description	Column Position	Max. Length	Req d. Value	Type	Just.
RECORD IDENTIFIER	1-	4	VOLM	Fixed	
DISK NUMBER	6-7	2	-	Number	Right

(1) The RECORD IDENTIFIER is the first four characters of this record. The required value for this field shall be VOLM .

(2) The DISK NUMBER field shall identify the number of data disk used to store the data exchange information. If all data may be contained on a single disk, this field shall contain the value of 1 . If more disks are required, then the second disk shall contain the value of 2 , the third disk shall be designated with a 3 , and so on. Identification of the last data disk shall not be accomplished with the Volume Record. Identification of the last data disk is accomplished in the PROJECT END RECORD (see Paragraph 12.I).

b. Project ID Record: The Project ID Record is the second record of the file and shall contain project information in the following format:

Description	Column Position	Max. Length	Req d. Value	Type	Just.
RECORD IDENTIFIER	1-4	4	PROJ	Fixed	
DATA DATE	6-12	7	-	ddmmmyy	See (2)
PROJECT IDENTIFIER	14-17	4	-	Alpha	Left
PROJECT NAME	19-66	48	-	Alpha	Left
CONTRACTOR NAME	68-103	36	-	Alpha	Left
ARROW OF PRECEDENCE	105	1	A-P	Fixed	
CONTRACT NUMBER	107-112	6	-	Alpha	Left
PROJECT START	114-120	7	-	ddmmmyy	Filled
PROJECT END	122-128	7	-	ddmmmyy	Filled

(1) The RECORD IDENTIFIER is the first four characters of this record. The required value for this field shall be PROJ . This record shall contain the general project information and indicates which scheduling method shall be used.

(2) The DATA DATE is the date of the schedule calculation. The abbreviation ddmmmyy refers to a date format that shall translate a date into two numbers for the day, three letters for the month, and two numbers for the year. For example, March 1, 1999 shall be translated into 01Mar99. This same convention for date formats shall be used throughout the entire data format. To insure that dates are translated consistently, the following abbreviations shall be used for the three character month code:

ABBREVIATION	MONTH
JAN	January
FEB	February

FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

MAR	March
APR	April
MAY	May
JUN	June
JUL	July
AUG	August
SEP	September
OCT	October
NOV	November
DEC	December

(3) The PROJECT IDENTIFIER is a maximum of four character abbreviation for the schedule. These four characters shall be used to uniquely identify the project and specific update as agreed upon by the Contractor and Contracting Officer. When utilizing scheduling software these four characters shall be used to select the project. Software manufacturers shall verify that data importing programs do not automatically overwrite other schedules with the same PROJECT IDENTIFIER.

(4) The PROJECT NAME field shall contain the name and location of the project edited to fit the space provided. The data appearing here shall appear on scheduling software reports. The abbreviation Alpha. , used throughout Paragraph 12, RECORD DESCRIPTIONS, refers to an Alphanumeric field value.

(5) The CONTRACTOR NAME field shall contain the Construction Contractor s name edited to fit the space provided.

(6) The ARROW OR PRECEDENCE field shall indicate which method shall be used for calculation of the schedule. The value A shall signify the Arrow Diagramming Technique. The value P shall signify the Precedence Diagramming Technique. The ACTIVITY IDENTIFICATION field of the Activity Record shall be interpreted differently depending on the value of this field (see Paragraph 12.e.2). The Precedence Record shall be required if the value of this field is P (see Paragraph 12.f).

(7) The CONTRACT NUMBER field shall directly identify the contract for the project. For example, a complete Government construction contract number, DACA85-97-C-0001 , shall be entered into this field as 970001 .

(8) The PROJECT START shall contain the date that the project will start or has started. On Government construction projects, this date is the date that the construction Contractor acknowledges the Notice to Proceed.

(9) The PROJECT END shall contain the date that the contract must complete on or prior to. On Government construction projects, this date is the PROJECT START plus the contract period, typically expressed in a specific number of calendar days.

c. Calendar Record: The Calendar Record(s) shall follow the Project Identifier Record in every data file. A minimum of one Calendar Record shall be required for all data exchange activity files. The format for the Calendar Record shall be as follows:

Description	Column Position	Max. Length	Req d. Value	Type	Just.
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FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

RECORD IDENTIFIER	1-4	4	CLDR	Fixed	
CALENDAR CODE	6-6	1	-	Alpha	Filled
WORKDAYS	8-14	7	SMTWTFS	See (3)	
CALENDAR DESCRIPTION	16-45	30	-	Alpha	Left

(1) The RECORD IDENTIFIER shall always begin with CLDR to identify it as a Calendar Record. Each Calendar Record used shall have this identification in the first four columns.

(2) The CALENDAR CODE shall be used in the activity records to signify that this calendar is associated with the activity.

(3) The WORKDAYS field shall contain the work-week pattern selected with Y, for Yes, and N for No. The first character shall be Sunday and the last character Saturday. An example of typical five (5) day work-week would be NYYYYN. A seven (7) day work-week would be YYYYYY.

(4) The CALENDAR DESCRIPTION shall be used to briefly explain the calendar used.

d. Holiday Record: Optional Holiday Record(s) shall follow the Calendar Record(s). The Holiday Record shall be used to designate specific non-work days for a specific Calendar. More than one Holiday Record may be used for a particular calendar. If used, the following format shall be followed:

Description	Column Position	Max. Length	Req d. Value	Type	Just.
RECORD IDENTIFIER	1-4	4	HOLI	Alpha	
CALENDAR CODE	6-6	1	-	Fixed	Filled
HOLIDAY DATE	8-14	7	-	ddmmmyy	Filled
HOLIDAY DATE	16-22	7	-	ddmmmyy	Filled
HOLIDAY DATE	24-30	7	-	ddmmmyy	Filled
HOLIDAY DATE	32-38	7	-	ddmmmyy	Filled
HOLIDAY DATE	40-46	7	-	ddmmmyy	Filled
HOLIDAY DATE	48-54	7	-	ddmmmyy	Filled
HOLIDAY DATE	56-62	7	-	ddmmmyy	Filled
HOLIDAY DATE	64-70	7	-	ddmmmyy	Filled
HOLIDAY DATE	72-78	7	-	ddmmmyy	Filled
HOLIDAY DATE	80-86	7	-	ddmmmyy	Filled
HOLIDAY DATE	88-94	7	-	ddmmmyy	Filled
HOLIDAY DATE	96-112	7	-	ddmmmyy	Filled
HOLIDAY DATE	114-120	7	-	ddmmmyy	Filled
HOLIDAY DATE	122-128	7	-	ddmmmyy	Filled

(1) The RECORD IDENTIFIER shall always begin with HOLI and shall signify an Optional Holiday Calendar is to be used.

(2) The CALENDAR CODE indicates which work-week calendar the holidays shall be applied to. More than one HOLI record may be used for a given CALENDAR CODE.

(3) The HOLIDAY DATE shall be used for each date to be designated as non-work day.

e. Activity Records: Activity Records shall follow any Holiday Record(s). If there are no Holiday Record(s), then the Activity Records

FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

shall follow the Calendar Record(s). There shall be one Activity Record for every activity in the network. Each activity shall have one record in the following format:

Description	Column Position	Max. Length	Req d. Value	Type	Just.
RECORD IDENTIFIER	1-4	4	ACTV	Fixed	
ACTIVITY IDENTIFICATION	6-15	10	-	See (2)	
ACTIVITY DESCRIPTION	17-46	30	-	Alpha	Left
ACTIVITY DURATION	48-50	3	-	Integer	Right
ACTIVITY COST	52-60	9	-	Integer	Right
CONSTRAINT DATE	62-68	7	-	ddmmmyy	Filled
CONSTRAINT TYPE	70-71	2	-	See (7)	
CALENDAR CODE	73-73	1	-	Alpha	Filled
HAMMOCK CODE	75-75	1	Y, blank	Fixed	
WORKERS PER DAY	77-79	3	-	Integer	Right
RESPONSIBILITY CODE	81-84	4	-	Alpha	Left
WORK AREA CODE	86-89	4	-	Alpha	Left
MOD OR CLAIM NUMBER	91-94	4	-	Alpha	Left
OFFER ITEM	96-99	4	-	Alpha	Left
UCI CODE	101-105	5	-	See (15)	
USER DEFINED	10-110	4	-	See (16)	
USER DEFINED	112-115	4	-	See (15)	
USER DEFINED	117-120	4	-	See (16)	
USER DEFINED	122-125	4	-	See (16)	
USER DEFINED	127-130	4	-	See (15)	

(1) The RECORD IDENTIFIER for each activity description record must begin with the four character ACTV code. This field shall be used for both the Arrow Diagram Method (ADM) and Precedence Diagram Method (PDM) (see Paragraph 12.b.6).

(2) The ACTIVITY IDENTIFICATION consists of coding that differs, depending on whether the ADM or PDM method was selected in the Project Record (see Paragraph 12.b.6). If the ADM method was selected, then the field shall be interpreted as two right-justified fields of five (5) integers each. If the PDM method was selected, the field shall be interpreted as one (1) right-justified field of ten (10) integers. The maximum activity number allowed under this arrangement is 99999 for ADM and 9999999999 for the PDM method.

(3) The ACTIVITY DESCRIPTION shall be a maximum of 30 characters. Descriptions must be limited to the space provided.

(4) The ACTIVITY DURATION contains the estimated duration for the activity on the schedule. The duration shall be based upon the work-week designated by the activity's related calendar (referenced in Paragraph 12.e.8).

(5) The ACTIVITY COST contains the estimated earned value of the work to be accomplished in the activity.

(6) The CONSTRAINT DATE field shall be used to identify a date that the scheduling system may use to modify float calculations. If there is a date in this field, then there must be a valid entry in the CONSTRAINT TYPE field. The CONSTRAINT DATE shall be the same as, or later than, the PROJECT START DATE. The CONSTRAINT DATE shall be the same as, or earlier than, the PROJECT END DATE.

FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

(7) The CONSTRAINT TYPE field shall be used to identify the way that the scheduling system shall use the CONSTRAINT DATE to modify schedule float calculations. If there is a value in this field, then there must be a valid entry in the CONSTRAINT DATE field. Below is the minimum list of entries for the CONSTRAINT TYPE. Other types may be available from specific software manufacturers.

<u>Code</u>	<u>Definition</u>
ES	The CONSTRAINT DATE shall replace an activity's early start date, if the early start date is prior to the CONSTRAINT DATE.
LF	The CONSTRAINT DATE shall replace an activity's Late finish date, if the late finish date is after the CONSTRAINT DATE.

(8) The CALENDAR CODE, as previously explained, relates this activity to an appropriate work-week calendar. The ACTIVITY DURATION must be based on the valid work-week referenced by this CALENDAR CODE field (see Paragraph 12.e.4).

(9) The HAMMOCK CODE indicates that a particular activity does not have its own independent duration, but takes its start dates from the start date of the preceding activity (or node) and takes its finish dates from the finish dates from the finish dates of its succeeding activity (or node). If the value of the HAMMOCK ACTIVITY is Y, then the activity is a HAMMOCK ACTIVITY.

(10) The WORKERS PER DAY is an optional field that shall be specified at the discretion of the Contracting Officer. This field shall contain the average number of workers expected to work on the activity each day the activity is in progress. The total duration times the average number of workers per day shall equal the Contractor's estimate of the total man days of work required to perform the activity.

(11) The RESPONSIBILITY CODE shall identify the subcontractor or major trade involved with completing the work for the activity.

(12) The WORK AREA CODE shall identify the location of the activity within the project.

(13) The MOD OR CLAIM NUMBER code is an optional field that shall be specified at the discretion of the Contracting Officer. This code shall uniquely identify activities that are changed on a construction contract modification, or activities that justify any claimed time extensions.

(14) The OFFER ITEM field is an optional field that shall be specified at the discretion of the Contracting Officer. This field shall designate the offer item number associated with the activity.

(15) The Construction Specification Institute Masterformat CSI CODE is an optional field that shall be specified at the discretion of the Contracting Officer. The CSI CODE shall contain the value of the code corresponding to the work to be accomplished in this activity.

FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

(16) USER DEFINED fields are optional and not required to meet the data exchange standard. They are provided to allow for a fixed expansion of capabilities for individual very large projects that may require additional fields.

f. Precedence Record: The Precedence Record(s) shall follow the Activity Records if a Precedence Type Schedule (PDM) is identified in the ARROW OR PRECEDENCE field of the Project Record (see Paragraph 12.b.6). The Precedence Record has the following format:

Description	Column Position	Max. Length	Req d. Value	Type	Just.
RECORD IDENTIFIER	1-4	4	PRED	Fixed	
ACTIVITY IDENTIFICATION	6-15	10	-	Integer	See (2)
ACTIVITY DESCRIPTION	17-26	10	-	Integer	
ACTIVITY DURATION	28-29	2	-	See (4)	
ACTIVITY COST	31-34	4	-	Integer	Right

(1) The RECORD IDENTIFIER shall begin with the four character PRED in the first four columns of the record.

(2) The ACTIVITY IDENTIFICATION identifies the activity whose predecessor shall be specified in this record. Refer to the Activity Record for further explanation on this field (see Paragraph 12.e.2).

(3) The PREDECESSOR ACTIVITY number is the number of an activity that precedes the activity noted in the ACTIVITY IDENTIFICATION field.

(4) The PREDECESSOR TYPE field indicates the type of relationship that exists between the chosen pair of activities. The PREDECESSOR TYPE field must, as a minimum, contain one of the codes listed below. Other types of activity relations may be supported from specific software vendors.

<u>Code</u>	<u>Definition</u>
SS	Start-to-Start relationship
FF	Finish-to-Finish relationship
FS	Finish-to-Start relationship

(5) The LAG DURATION field contains the number of days delay between the preceding and current activity.

g. Unit Cost Record: The Unit Cost Record shall follow all Precedence Records. If the schedule utilizes the Arrow Diagram Method, then the Unit Cost Record shall follow any Activity Records. The fields for this record shall take the following format:

Description	Column Position	Max. Length	Req d. Value	Type	Just.
RECORD IDENTIFIER	1-4	4	UNIT	Fixed	
ACTIVITY IDENTIFICATION	6-15	10	-	Integer	See (2)
TOTAL QTY	17-27	11	-	Floating	Part
COST PER UNIT	29-39	11	-	Floating	Part
QTY TO DATE	41-51	11	-	Floating	Part
UNIT OF MEASURE	53-55	3	-	Alpha	

FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

(1) The RECORD IDENTIFIER shall be identified with the four character UNIT placed in the first four columns of the record.

(2) The ACTIVITY IDENTIFICATION for each activity shall match the format described in the activity record (see Paragraph 12.e.2).

(3) The TOTAL QTY is the total amount of this type of material to be used in this activity. This number consists of eight digits, one decimal point, and two more digits. An example of a number in this format is 11111111.11. If decimal places are not needed, this field shall still contain a .00 in Columns 25, 26, and 27.

(4) The COST PER UNIT is the cost, in dollars and cents, for each unit to be used in this activity. This number consists of eight digits, one decimal point, and two more digits. An example of a number in this format is 11111111.11. If decimal places are not needed, this field shall still contain a .00 in Columns 37, 38, and 39.

(5) The QTY TO DATE is the quantity of material installed in this activity up to the data date. This number consists of eight digits, one decimal point, and two more digits. An example of a number in this format is 11111111.11. If decimal places are not needed, this field shall still contain a .00 in Columns 49, 50, and 51.

(6) The UNIT OF MEASURE is an abbreviation that may be used to describe the units being measured for this activity.

h. Progress Record: Progress Record(s) shall follow all Unit Cost Record(s). If there are no Unit Cost Record(s), then the Progress Record(s) shall follow all Precedence Records. If the schedule utilize the Arrow Diagram Method, then the Progress Record shall follow any Activity Records. One record shall exist for each activity in-progress or completed. The fields for this Record shall take the following format:

Description	Column Position	Max. Length	Req d. Value	Type	Just.
RECORD IDENTIFIER	1-4	4	PROG	Fixed	
ACTIVITY IDENTIFICATION	6-15	10	-	Integer	See (2)
ACTUAL START DATE	17-23	7	-	ddmmyy	Full
ACTUAL FINISH DATE	25-31	7	-	ddmmyy	Full
REMAINING DURATION	33-35	3	-	Integer	Right
COST TO DATE	37-45	9	-	Integer	Right

(1) The RECORD IDENTIFIER shall begin with the four character PROG in the first four columns of the record.

(2) The ACTIVITY IDENTIFICATION for each activity for which progress has been posted, shall match the format described in the Activity Record (see Paragraph 12.e.2).

(3) An ACTUAL START DATE is required for all in-progress activities. The ACTUAL START DATE shall be the same as, or later than, the PROJECT START date contained in the Project Record (see Paragraph 12.b.8). The ACTUAL START DATE shall also be the same as, or prior to, the DATA DATE contained in the Project Record (see Paragraph 12.b.2).

FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

(4) An ACTUAL FINISH DATE is required for all completed activities. If the REMAINING DURATION of an activity is zero, then there must be an ACTUAL FINISH DATE. The ACTUAL FINISH DATE must be the same as, or later than the PROJECT START date contained in the Project Record (see Paragraph 12.b.8). The ACTUAL FINISH DATE must also be the same as, or prior to the DATA DATE contained in the Project Record (see Paragraph 12.b.2).

(5) A REMAINING DURATION is required for all in-progress activities. Activities completed, based on time, shall have a zero (0) REMAINING DURATION.

(6) Cost progress is contained in the field COST TO DATE. If there is an ACTUAL START DATE, then there must also be some value for COST TO DATE. The COST TO DATE is not tied to REMAINING DURATION. For example, if the REMAINING DURATION is "0", the COST TO DATE may only be 95 percent of the ACTIVITY COST. This difference may be used to reflect 5 percent retainage for punch list items.

i. File End Record:

(1) The File End Record shall be used to identify that the data file is completed. This record shall be the last record of the entire data file. The File End Record shall have the following format:

Description	Column Position	Max. Length	Req d. Value	Type	Just.
RECORD IDENTIFIER	1-3	3	END	Fixed	

(2) The RECORD IDENTIFIER for the File End Record shall be "END". No data contained in the data exchange file that occurs after this record is found shall be used.

SCR-35 *

SCR-36 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15, 31 Oct 1989):

1. This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the Contract Clause entitled DEFAULT (FIXED PRICE CONSTRUCTION). In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

a. The weather experienced at the project site during the contract period must be found to be unusually severe; that is, more severe than the adverse weather anticipated for the project location during any given month.

b. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

2. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

Monthly Anticipated Adverse Weather Delay Work Days Based on a 5-Day Work Week.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
22	20	21	0	0	1	1	1	0	10	21	22

3. Upon acknowledgement of the Notice to Proceed and continuing throughout the contract, the Contractor shall record on the daily CQC report, the occurrence of adverse weather and the resultant impact to normally scheduled work. Actual adverse weather delays days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day. The number of actual adverse weather days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day in each month, and be recorded as full days. If the number of actual adverse weather days exceeds the number of days anticipated in Paragraph 2, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the Contract Clause entitled DEFAULT (FIXED-PRICE CONSTRUCTION) .

SCR-37 AND SCR-38 *

SCR-39 NOT USED

SCR-40 KEY PERSONNEL:

During the performance of this contract, no substitutions shall be made for individuals specifically identified in the Contractor's accepted proposal to perform key functions in the work, unless determined necessary by the Contracting Officer and approved in writing. Proposed substitutes shall have qualifications comparable to those of the persons being replaced.

SCR-41 DESIGN-BUILD CONTRACT - ORDER OF PRECEDENCE

(a) The contract includes the standard contract clauses and schedules current at the time of the contract award. It entails (1) the solicitation in its entirety, including all drawings, cuts, illustrations, and any amendments, and (2) the successful offeror's accepted proposal. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any way bears upon the terms of that agreement.

(b) In the event of conflict or inconsistency between any of the provisions of this contract, precedence shall be given in the following order:

- 1) Betterments: Any portions of the accepted proposal which both conform to and exceed the provisions of the solicitation.
- 2) The provisions of the solicitation. (See also Contract Clause: SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION.)
- 3) All other provisions of the accepted proposal.
- 4) Any design products including, but not limited to, plans, specifications, engineering studies and analyses, shop

FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

drawings, equipment installation drawings, etc.. These are "deliverables" under the contract and are not part of the contract itself. Design products must conform with all provisions of the contract, in the order of precedence herein.

SCR-42 PROPOSED BETTERMENTS

(a) The minimum requirements of the contract are identified in the Request for Proposal. All betterments offered in the proposal become a requirement of the awarded contract.

(b) "Betterment" is defined as any component or system which exceeds the minimum requirements stated in the Request for Proposal. This includes all proposed betterments listed in accordance with the "Proposal Submission Requirements" of the Solicitation, and all Government identified betterments.

(c) "Government identified betterments" include the betterments identified on the "List of Accepted Project Betterments" prepared by the Proposal Evaluation Board and made part of the contract by alteration, and all other betterments identified in the accepted Proposal after award.

SCR-43 SEQUENCE OF DESIGN-CONSTRUCTION

(a) After receipt of Notice to Proceed (NTP), the Contractor shall initiate design, comply with all design submission requirements as covered under Division 01 General Requirements, and obtain Government review of each submission. No construction may be started until the Government has reviewed the Final Design submission and determined it satisfactory for purposes of beginning construction, except that site clearing, etc. may be initiated with the permission of the Contracting Officer. The Contracting Officer will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the Contracting Officer, the initial submission failed to meet the minimum quality requirements as set forth in the contract.

(b) If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

SCR-44 RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN

(a) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and any other non-construction services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiency in its designs, drawings, specifications, and other non-construction services.

(b) Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract, or of any cause of action arising out of the performance of this contract, and the Contractor shall be and remain liable to the Government in accordance with applicable law for all

FY01 REPLACEMENT MILITARY FAMILY HOUSING

FTW230

damages to the Government caused by the Contractor's negligent performance of any of the services described in paragraph (a) furnished under this contract.

(c) The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.

SCR-45 SAFETY AND HEALTH REQUIREMENTS MANUAL, EM-385-1-1, U.S. ARMY CORPS OF ENGINEERS

EM 385-1-1 and its changes are available at <http://www.hq.usace.army.mil> (at the HQ homepage, select Safety and Occupational Health).

The Contractor shall be responsible for complying with the current edition and all changes posted on the web (see web address above) as of the effective date of this solicitation.

SCR-46 THRU SCR-99 NOT USED

SCR-100 *

SCR-101 THRU SCR-110 NOT USED

SCR-111 AND SCR-112 *

* Due to the recent conversion from the Standard Army Contracting (SAACONS) to the new Department of Defense's Standard Procurement System, Procurement Desktop Defense (PD2), the following Special Contract Clauses previously located in Section 00800 are now located in Section 00700 (Supplement).

--End of Special Contract Requirements--

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

SECTION TABLE OF CONTENTS

DIVISION 01 GENERAL REQUIREMENTS

SECTION 01010 DESIGN REQUIREMENTS

PART I GENERAL

- 1.1 PROJECT DESCRIPTION / STATEMENT OF WORK
- 1.2 INTENT
- 1.3 DESIGNER OF RECORD
- 1.4 CODES AND REFERENCES
- 1.5 BETTERMENTS
- 1.6 PROHIBITED ITEMS
- 1.7 DESIGN/BUILD CONTRACTOR INNOVATIONS

PART II MINIMUM DESIGN CRITERIA

- 2.1 DEMOLITION DESIGN CRITERIA
- 2.2 HAZARDS ABATEMENT DESIGN CRITERIA
- 2.3 CIVIL DESIGN CRITERIA
- 2.4 ARCHITECTURAL DESIGN CRITERIA
- 2.5 STRUCTURAL DESIGN CRITERIA
- 2.6 MECHANICAL DESIGN CRITERIA
- 2.7 ELECTRICAL DESIGN CRITERIA
- 2.8 LANDSCAPE DESIGN CRITERIA

PART III ROOM CRITERIA SHEETS

Three-Bedroom Unit

3-Bedroom Unit Requirements

Living Room
Dining Room
Family Room
Kitchen
Washer/Dryer
Bedroom #1
Bedroom #1 Closet
Bedroom #2
Bedroom #2 Closet
Bedroom #3
Bedroom #3 Closet
Half-Bath
Full-Bath
Vestibule
Entry Hall Closet
Patio
Garage
Bulk Storage

Four-Bedroom Unit

4-Bedroom Unit Requirements

Living Room
Dining Room

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

Family Room
Kitchen
Washer/Dryer
Bedroom #1
Bedroom #1 Closet
Bedroom #2
Bedroom #2 Closet
Bedroom #3
Bedroom #3 Closet
Bedroom #4
Bedroom #4 Closet
Half-Bath
Full-Bath
Vestibule
Entry Hall Closet
Patio
Garage
Bulk Storage

Mechanical Room - All Buildings

--End of Section Table of Contents--

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

SECTION 01010

DESIGN REQUIREMENTS

PART I GENERAL

1.1 PROJECT DESCRIPTION / STATEMENT OF WORK

a) General

This project is a whole neighborhood revitalization on Fort Wainwright, Alaska for design and construction of Replacement Family Housing, associated housing demolition, and arctic utilidor work. Fort Wainwright is located at the eastern edge of the North Star Borough and city of Fairbanks, accessible from Airport Road and Richardson Highway. Fairbanks proper is located at 64 degrees north latitude.

Ft. Wainwright is phasing out aging housing units constructed in the 1940's with new buildings conforming to updated space requirements and construction standards. The current mission for this facility is to decommission and demolish twelve 8-plex housing structures (96 units).

Forty 3-bedroom units and thirty-five 4-bedroom units (75 total units) will be constructed in the North Town subdivision in North Post for company grade officer family quarters, as part of the FTW230 Replacement Family Housing NT18 and NT1. Four of the forty 3-bedroom units are required to be readily handicap adaptable at main and upper floor levels.

The Government requires the Contractor to phase the turn over of completed buildings in groups eighteen (18) units maximum at one time. The Contractor may propose a delivery schedule advantageous both to the Fort Wainwright Housing Office and tenants, and the Contractor's seasonal work schedule.

b) Statement of Work

1. Demolition of 12 housing structures. The buildings to be demolished are located in two subdivisions: North Town in North Post and Southern Cross in South Post. Seven buildings in the North Town subdivision are 1014, 1027, 1028, 1029, 1030, 1038, and 1039 on Dogwood Road and 100th Street. Five buildings in the Southern Cross subdivision are 4139, 4133, and 4134 on Neely Road and 4130 and 4129 on 8th Street. While not required, if found to be useful and cost efficient to the design/build team's proposal, foundations at the seven North Town buildings may be retained and reused for the new construction. Base Housing has expressed interest in the basement space that existing foundations provide, because the new construction programming does not include basement

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

space. If the existing foundations are to be reused for the new construction, a complete structural investigation and analysis shall be required of each foundation to remain. The Structural Engineer of Record shall verify that the foundations are in sound condition and capable of supporting all loads from the new construction. Utilidor laterals and other site elements will be demolished to support new housing.

2. Site development shall incorporate street and sidewalk extensions (if needed), paving, utilities and utilidor connections, (2) replacement fire hydrants by Kennedy or Waterous, landscaping, parking, and exterior lighting and other amenities as outlined in Part II of this Section. Provide fire lane access per UFC and MIL HDBK 1008C. Site improvement at Southern Cross demolition area is limited to infill and grass landscaping only.
3. Construction of 75 housing units in 3-plex, 4-plex, and 6-plex buildings, forty 3-bedroom and thirty-five 4-bedroom units total. Four handicap adaptable units may be located in a single building or interspersed among the buildings.
4. Force protection is categorized as minimum risk. Security measures include security glazing and dead bolts for exterior doors, exterior lighting, roof-mounted fresh-air intake, and Dumpster location 24.4 meters (80 feet) minimum distance from the buildings. Requirements by discipline are detailed in Part II - Design Requirements, In reply to: This Section.
5. Acoustical protection systems will be incorporated in the building structure, the mechanical and electrical equipment and the wall construction between units. Acoustical criteria for individual spaces are described in SECTION 01010 PART 3 - Room Criteria Sheets.

1.2 INTENT

- a) The Government seeks a complete and usable residential housing complex with street appeal, free of defects, and compatible with the surrounding built and natural environment. Innovation and creativity are encouraged in developing the overall scheme for this project. Street appeal refers to the desire that the building form be interesting, the garage shall not dominate visually, individual units shall visually differ from adjacent units, and the building massing shall not be boxy.
- b) This project shall be designed and constructed with quality materials and workmanship throughout and in accordance with all applicable codes and standards, USACE Technical Instructions for Family Housing, Ft. Wainwright and Ft.

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

Richardson Installation Design Guide, other local ordinances, and the requirements of this RFP. It is the intent of this RFP to establish minimum design and construction requirements for the proposed buildings that meet or exceed the standards referenced in paragraph, CODES AND REFERENCES. Choice of materials and methods of construction shall not compromise the safety of building occupants and shall optimize quality, aesthetics, economy, maintainability, and life cycle costs.

1.3 DESIGNER OF RECORD

- a) Final design submittals and each drawing included therein shall be signed by and affixed with the seal of an architect or professional engineer registered in the State of Alaska who shall be termed the "Designer of Record" for the respective disciplines.
- b) Where construction and testing standards and criteria are contained within this section, the designer of record shall place them in the construction documents and require them of the Contractor during construction.

1.4 CODES AND REFERENCES

- a) Industry standard references such as the UBC, NFPA, and ASHRAE and some references readily available and/or on the Internet are not attached with this RFP. Each offeror shall be responsible for obtaining any documents not attached as part of this RFP but referenced as criteria for this project. Requirements contained in this RFP may revise, add to, or substitute for criteria contained in the referenced documents. This RFP shall be deemed the controlling authority wherever such differences exist.
- b) Publications: The publications listed below form the regulatory standards of this specification. Construction shall be in accordance with the following codes, standards, and regulations. If dates are not given for reference standards or criteria, the latest edition is to be used. The most stringent shall govern where discrepancies occur. See the subsequent discipline narratives in this Section for additional regulatory standards, codes, and references.

1. Uniform Building Code (UBC), 1997.
2. MIL-HDBK-1008C, Fire Protection for Facilities.
Requirements of this handbook shall govern over other standards for fire protection and life safety.
3. Uniform Mechanical Code (UMC).
4. National Electric Code (NEC).
5. National Fire Protection Association Fire Codes (NFPA), latest editions.
6. Life Safety Code: National Fire Protection Association, NFPA 101.
7. Uniform Federal Accessibility Standards (UFAS-49FR 31528).
8. Fort Wainwright and Fort Richardson Installation

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- Design Guide (available at TechInfo - <http://www.poa.usace.army.mil/idg/splash.htm>).
9. Ft. Wainwright and Ft Richardson Site & Landscape Development Plan (latest edition).
10. U.S. Army Engineering and Design Interior Design ER 1110-345-122 (available at TechInfo - <http://www.poa.usace.army.mil/idg/splash.htm>).
11. Ft. Wainwright Family Housing Community Plan.
12. Glass Manufacturer Standards.
13. Fire Resistance Directory, Vol. 1 and 2, UL, 2000 edition.
14. Standard for Fire Doors and Fire Windows, NFPA 80.
15. Steel Door Institute, ANSI/SDI-100.
16. Gypsum Association, Fire Resistance Design Manual.
17. American Architectural Manufacturers Association, AAMA 101-93.
18. Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program, AWI.
19. Handbook for Ceramic Tile Installation, Tile Council of America.
20. Military Technical Manuals (TM) or Technical Instructions (TI).

c) Appendices: The drawings and documents listed below form the basis for programming and design criteria and are listed in order of precedence should conflicts occur. Also, SECTION 01010 MINIMUM DESIGN CRITERIA and Room Criteria Sheets take precedence over the design guides referenced above where conflicts occur.

1. LV-1 Location and Vicinity Map 1, LV-2 North Town, Demolition Plan, LV-3 Southern Cross Demolition Plan.
2. North Town Site Survey.
3. G-Tabs - 1983; Utilidor, Water, Sanitary Sewer, Storm Drainage, Telephone, Electrical, Heating, Lighting.
4. Geotechnical Report with Recommendations.
5. Final Chemical Data Report.
6. Hazardous Materials Demolition Survey Report.
7. Fire Flow Hydrant Data.
8. Annotated Site Photographs.
9. Cultural Properties Section 106 Review.
10. Force Protection Guidelines.
11. Ft. Wainwright Standard Operating Procedures - Utilities Outages, Electrical Service Hook-up.
12. Utilidor Design Checklist.

1.5 BETTERMENTS

The following are desired items from all disciplines beyond the minimum standards identified in this and referenced documents. Offerors shall include as many or all of the following enhancements as the overall budget and gross building area allow.

1. Solid Surface Countertops in Kitchens and Bathrooms.
2. Increase Landscaping.
3. Consolidate Mechanical Rooms.

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

4. Additional Off-Street Parking.
5. Additional Wiring for Computers in Family Room, Bedrooms.
6. Fencing for Individual Residential Units.
7. Second vanity sink in bathrooms.
8. Ceilings higher than 7 feet 6 inches AEI minimum criteria.

1.6 PROHIBITED ITEMS

Proposals shall not present a design inclusive of any prohibited item described by each discipline in Section II Minimum Design Criteria narratives.

1.7 DESIGN/BUILD CONTRACTOR INNOVATIONS

- a) The design criteria stated in this RFP are the minimum quality acceptable. Offerors are encouraged to offer creative alternatives that meet and/or exceed these minimums within allowable funds. Proposals shall itemize innovations and describe the reasons and cost factors for their inclusion. Refer to SECTION 00100 for Proposal submission requirements and SECTION 00120 for Proposal Evaluation Factors.
- b) With the exception of Prohibited Items, all Innovations that benefit the facility will be considered, and will be evaluated based on durability, conformance to base standards, maintenance, and aesthetics. Mechanical, electrical, and fire protection minimum design requirements described in Section 2.4 ARCHITECTURAL DESIGN CRITERIA, 2.5 STRUCTURAL DESIGN CRITERIA, and 2.6 MECHANICAL DESIGN CRITERIA are prescriptive where indicated, innovations are allowed within the parameters.

PART II MINIMUM DESIGN CRITERIA

2.1 DEMOLITION DESIGN CRITERIA

2.1.1 References

- a) The publications listed below form a part of this specification. The publications are referred to in the text by basic designation only. If dates are not given for reference standards or criteria, the latest edition is to be used.
- b) Construction shall be in accordance with the following codes, standards, and regulations. The most stringent shall govern when discrepancies occur.
 1. EM 385-1-1, U.S. Army Corps of Engineers Safety and Health Requirements Manual.
 2. Hazardous Material and Waste Management Plan (HMWMP) for Ft. Wainwright.
 3. Contractor Guidance for Preparing and Executing Stormwater Pollution Prevention Plans, ADOT&PF 2nd

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

Edition 1993.

4. Hazardous Material Survey (see Appendices).
 5. Geotechnical Findings Report "FTW230", FT. Wainwright, Alaska, dated March 2001 (see Appendices).
 6. Waste Disposal/Borrow Pit Coordination Review (see Appendices).
- c) Refer to Hazardous Materials Removal Design Criteria, paragraph 2.2, for specific codes, standards, and regulations applicable to hazardous material removal work.

2.1.2 Minimum Requirements

The Design-Build Contractor's Architect or Engineer(s) of Record shall be responsible for the design associated with demolition work. Complete design shall generally include that required to define and describe execution of the demolition work including hazardous material abatement, removal, handling, and disposal; shoring and safety measures; and interface with existing utilities and surface features that remain. The demolition design drawings and calculations shall be sealed by the architect or engineer(s) in responsible charge. The architect or engineer(s) shall be licensed in the State of Alaska.

2.1.3 Scope and Objectives

Demolition work shall consist of the complete design of removal of existing buildings, site improvements, and utilities as indicated and as required to accomplish the new construction. It shall be the Contractor's responsibility to protect existing features, including roads, utilidors, trees, sidewalks, paving, curbs, and similar items not in the contract work limits, which if damaged by the Contractor shall be replaced in kind at no cost to the Government.

2.1.4 Work Description

- a) The demolition project sites are in two subdivisions: North Town in North Post and Southern Cross in South Post. Seven (7) buildings in the North Town subdivision are 1014, 1027, 1028, 1029, 1030, 1038, and 1039 on Dogwood Road and 100th Street. Five (5) buildings in the Southern Cross subdivision are 4139, 4133, and 4134 on Neely Road and 4130 and 4129 on Cedar Street.
- b) General Building Description
1. All buildings are 2-story wood framed multi-family residential units on concrete foundations with full basements. Buildings were originally constructed in the late 1940's and 1950's.
 2. Each building is approximately 62.8 m x 6.6 m in plan.
 3. Demolition includes removal of hazardous materials, all structure (superstructure and foundations), and partitions, mechanical, and electrical systems. Contractor has the option of using the existing

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

foundations at the North Town site, including basement if other requirements of this RFP are met.

c) Site Description

1. Water, sanitary sewer, steam and condensate utilities are provided to each building through underground concrete lateral utilidors from the utilidor mainline. Electrical service is provided by overhead service drops.
2. Demolition will include removal of the building signs, concrete walkways leading to sidewalks, concrete steps at porches, and asphalt parking areas. Utilidor laterals, including concrete structure and piping, will be removed to the mainline utilidor. Electrical service will be disconnected and the wire and poles removed between the building weatherhead and the power poles

d) Items to Remain

Roads, curbs, gutters, sidewalks, and mainline utilidors are expected to remain if they do not interfere with new construction.

e) Patching

1. Existing AC pavement will be sawcut in a straight line parallel or perpendicular with traffic flow. Concrete sidewalks and curbs will be patched as required.
2. The utilidor piping will be capped using a welded cap or blind flange at the manhole. The manhole wall will be infilled with a concrete patch and water-proofed.

f) Subsurface Conditions

1. See Geotechnical Findings Report in Appendix.
2. Field screening shall be used to determine if soils are contaminated during all excavation work.

g) Hazardous Materials

Refer to Hazardous Materials Report in Appendix and Hazardous Material Abatement Design Criteria, paragraph 2.2, for specific requirements for hazardous material removal.

h) Backfilling of Demolished Sites

All excavations from demolition activities shall be backfilled in 300 mm lifts and compacted to 95% of optimum density. Backfill may be unclassified material that does not contain organic material, trash, rubble, stones in excess of 150 mm or other deleterious materials.

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- i) Salvage of Materials and Equipment - Contractor shall salvage and reuse or turn over useable items from buildings, such as "Best" lock cores and circulation pumps. Identification of salvage items and procedure shall be in accordance with SECTION 01015 SPECIAL ITEMS, paragraph 1.11.1, Salvage of Lockset Cores.

2.1.5 Demolition Work

- a) Demolition procedures, methods, sequence of operations, and equipment shall be in accordance with EM 385-1-1.
 - b) Rubbish and debris shall be removed from work site daily, unless otherwise directed, to avoid accumulation at the demolition site. The Contractor shall take necessary precautions to avoid damaging Government property, and if damage occurs, shall repair or replace the damage as directed by the Contracting Officer at no cost to the Government. When utility lines are encountered that are not indicated on the drawings, the Contracting Officer shall be notified prior to further work in that area.
1. Project Demolition. Demolition of all features or items found on the site (paved parking areas, fence, utilities, poles, etc.) shall be considered incidental to the Contract. Title to material and equipment to be demolished, except historical items, is vested in the Contractor upon receipt of Notice to Proceed and the Government will not be responsible for the condition, loss, or damage to such property. There are no known items of historical significance on the site.
 2. Disposal of Solid Wastes: The Contractor shall be responsible for disposal of all demolition debris, construction debris, and all solid waste at an approved off-base location; or to on-base locations in accordance with the FTW Standard Operating Procedure (SOP) for Waste Disposal Plan. Solid waste shall be placed in containers and disposed of on a regular schedule. All handling, transport, and disposal shall be conducted in such a way as to prevent spillage and contamination in compliance with Federal, State, and Local requirements. Clean granular soil materials shall be disposed of on-base in accordance with the SOP for Post borrow pit. Disposal of any hazardous waste shall be made through the FTW Hazardous Waste Facility in accordance with the FTW SOP for hazardous material.
 3. Existing utility services shall be protected from damage. Coordinate and obtain locates for all buried utilities prior to beginning work.
 4. All asphalt paving and P.C.C. sidewalk shall be sawcut at the limits of removal. As applicable, replacement or repair asphalt paving, P.C.C. sidewalk, base material, and subbase material shall match existing thickness.

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

5. Provide site-clearing operations necessary for construction of the facility and related improvements. Miscellaneous demolition shall include clearing and grubbing of trees, shrubs, and organic overburden as required to construct the new improvements at the site location.
6. Contractor shall demolish building service and cap off all existing utility connections at manholes or where the service line connects to the mainline in utilidors. Dead end service lines shall not be allowed. Closure of utilities shall be with welded cap or flange. Patch penetrations in utilidor walls where old utility lines are removed.
7. The Contractor shall demolish building service utilidors and conduct demolition and removal operations to ensure minimum interference with streets, walks, or other adjacent facilities being used.
8. The Contractor shall ensure safe passage of persons around area of demolition and conduct operations to prevent injury to adjacent buildings, structures, and persons. The Contractor shall promptly repair damages caused to adjacent structures by demolition operations at no cost to the Government.
9. Contractor shall review and comply with FTW SOP for waste disposal and borrow pit operation with regard to hauling and disposal regulations, in exchange for use of Post disposal and borrow facilities, and before starting any demolition work. Burning is not permitted on site. Blasting is not permitted.
10. Use water mist, temporary enclosures and other suitable methodology to limit the spread of dust and debris. Comply with governing state and federal environmental protection regulations. Contractor shall maintain rigorous dust control on all construction sites, haul roads, and at the landfill site. FTW SOP for dust control is that no visible dust may come off active construction sites at any time of the day or night, and no visible dust from Contractor use of haul roads or landfill. Construction sites shall be monitored after hours and weekends for dust control. Construction sites and haul routes shall be continually monitored during use to clean up mud, control dust and other debris, and repair damage caused by construction activities.
11. Use Best Management Practices (BMP's) as necessary to mitigate storm water erosion and sediment pollution runoff from the site.
12. Contractor shall provide a temporary 6 foot high chain link fence to provide separation of the site and pedestrians and vehicle traffic. Coordinate security and barrier requirements with the Contracting Officer and FTW. Fencing will be required at both demolition sites and around the entire construction site.

2.1.6 Environmental Issues

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- a) Many environmental issues must be considered in both the design and construction of this project. In general, the Contractor is responsible for preparing the necessary documentation, including work plans, sampling and testing reports, and other documents required to accomplish the work. In addition the Contractor shall comply with existing permit and work plan requirements in place between FTW and regulatory agencies. The Contractor shall communicate environmental issues through the Contracting Officer. Direct communication with regulatory agencies shall be approved in advance by the Contracting Officer. The Contractor shall pay for regulatory review fees necessary for obtaining permits.
- b) This project includes handling and disposal of hazardous materials. Depending on depth and location of excavation work, POL contaminated soil and groundwater may be encountered.
- c) See paragraph 2.3, CIVIL DESIGN CRITERIA for specific requirements for contaminated soil and storm water runoff.
- d) See paragraph 2.2, HAZARDOUS MATERIAL ABATEMENT DESIGN CRITERIA for specific requirements for hazardous materials.
- e) Surface runoff that enters excavations may become contaminated if soils are contaminated. Dewatering of surface runoff from excavation shall include sampling and testing and treatment as required. Any dewatering required during construction shall be coordinated with the Contracting Officer.
- f) If any garbage, debris, drums, free liquids, or other potentially hazardous materials not addressed in the Hazardous Materials Report are encountered during construction, notify the Contracting Officer before proceeding with removal.
- g) The Contractor shall submit a description of hazardous materials, including Material Safety Data Sheets and projected quantity of each, anticipated to be brought to the site for use during construction. Contractor shall submit description within 21 days of Notice to Proceed in accordance with 354 FWI 7005.

2.1.7 Sequencing

- a) Demolition of the buildings in the Southern Cross neighborhood shall be accomplished in Spring 2002. Site shall be backfilled, top soiled, and seeded in accordance with requirements of paragraph 2.8, LANDSCAPE DESIGN.
- b) Demolition of buildings in the North Town neighborhood shall be determined by Contractor's schedule.

2.2 HAZARDS ABATEMENT DESIGN CRITERIA

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

2.2.1 Summary

- a) This Section includes the minimum requirements for the proper removal and disposal of hazardous materials from the project utilidors, utilidor laterals and Buildings 1014, 1027, 1028, 1029, 1030, 1038, 1039, 4129, 4130, 4133, 4134, and 4139.
- b) A hazardous materials survey was performed by the US Army for this project and the Hazardous Materials Survey Report is attached as Appendix 6 to the RFP documents. Estimated quantities of hazardous materials are identified in the Hazardous Materials Survey Report. Other Fort Wainwright survey data associated with the buildings and utilidors of this project can be obtained from Fort Wainwright Public Works office or the project manager.
- c) Fort Wainwright considers utilidors to be Permit Required Confined Spaces. Contractor shall have a confined space program for entry and performing work in utilidors that complies with the Corps of Engineers (COE) Safety and Health Requirements Manual and 29 CFR 1910.146. Confined space permits shall be issued prior to any utilidor work.

2.2.2 Scope of Work

The Contractor shall identify all hazardous materials in the project to be removed, create a work plan for the safe removal of these materials, remove the materials and transport and dispose of them in accordance with all applicable federal, state and local regulations, the specifications and the approved work plan. Coordinate all project abatement activity with the work of other trades at the job site to ensure that unprotected workers are not exposed to hazardous materials. Provide documentation that hazardous materials have been removed, properly disposed of and the work area is safe for unprotected workers.

2.2.2.1 ASBESTOS ABATEMENT

Asbestos abatement work shall be performed in accordance with referenced standards and regulations, the specifications, and the approved Contractor's Hazardous Materials Work Plan. A survey of the buildings and utilidor has been performed and results indicate that asbestos-containing material exists in the buildings and utilidors.

2.2.2.2 LEAD ABATEMENT

Lead abatement work shall be performed in accordance with referenced standards and regulations, the specifications, and the approved Contractor's Hazardous Materials Work Plan. Regulated work areas shall be established for all lead abatement work. Lead-containing paint was detected on items to be removed as part of the project scope of work. Post demolition lead in soil samples shall be collected to verify soils in the project area

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

are not contaminated by activities impacting lead containing building components or paint. Contaminated soils shall be removed and properly disposed of. Metal items shall be recycled to the extent practical. All loose and flaking paint chips shall be collected and disposed of as hazardous waste.

2.2.2.3 CHEMICAL HAZARDS ABATEMENT

Chemical hazards abatement work shall be performed in accordance with referenced standards and regulations, the specifications, and the approved Contractor's Hazardous Materials Work Plan. Regulated work areas shall be established for all chemical hazards abatement work.

2.2.2 REFERENCES

Hazardous materials abatement shall be performed in accordance with the following applicable codes, standards and regulations.

1. ANSI Z9.2 (1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems.
2. ANSI Z87.1 (1989; Errata; Z87.1a) Occupational and Educational Eye and Face Protection.
3. ANSI Z88.2 (1992) Respiratory Protection.
4. ASTM D 1331 (1989; R 1995) Surface and Interfacial Tension of Solutions of Surface-Active Agents.
5. ASTM D 4397 (1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications.
6. ASTM E 119 (1998) Fire Tests of Building Construction and Materials.
7. ASTM E 1368 (1999) Visual Inspection of Asbestos Abatement Projects.
8. ASTM E 1553(1993) Practice for Collection of Airborne Particulate Lead During Abatement and Construction Activities.
9. ASTM E 1613(1999) Standard Method for Determination of Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption Spectrometry (FAAS), or Graphite Furnace Atomic Absorption Spectrometry (GFAAS) Techniques.
10. ASTM E 1644(1998) Practice for Hot Plate Digestion of Dust Wipe Samples for the Determination of Lead.
11. ASTM E 1726(1995) Sample Digestion of Soils for the Determination of Lead by Atomic Spectrometry.
12. ASTM E 1727(1995) Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques.
13. ASTM E 1728(1995) Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques.
14. ASTM E 1729(1995) Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques.
15. ASTM E 1741(1995) Preparation of Airborne Particulate Lead Samples Collected during Abatement and Construction Activities for Subsequent Analysis by

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- Atomic Spectrometry.
- 16. ASTM E 1792(1996a) Wipe Sampling Materials for Lead in Surface Dust.
- 17. 29 CFR 1910 Occupational Safety and Health Standards.
- 18. 29 CFR 1926 Safety and Health Regulations for Construction.
- 19. 40 CFR 61 National Emissions Standards for Hazardous Air Pollutants.
- 20. 40 CFR 260 Hazardous Waste Management System: General.
- 21. 40 CFR 261 Identification and Listing of Hazardous Waste.
- 22. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste.
- 23. 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste.
- 24. 40 CFR 268 Land Disposal Restrictions.
- 25. 40 CFR 763 Asbestos.
- 26. 42 CFR 84 Approval of Respiratory Protective Devices.
- 27. 49 CFR 107 Hazardous Materials Program Procedures.
- 28. 49 CFR 171 General Information, Regulations and Definitions.
- 29. 49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements.
- 30. 49 CFR 173 Shippers - General Requirements for Shipments and Packaging.
- 31. AR 200-1 Hazardous Materials and Regulated Waste Management.
- 32. U.S. Army, Alaska, Pamphlet 200-1 Hazardous Materials and Regulated Waste Management.
- 33. Fort Wainwright AMP Asbestos Management Plan.
- 34. Fort Wainwright LBPM Lead-Based Paint Management Plan.
- 35. EM 385-1-1 (1996) U.S. ARMY Corps of Engineers.
- 36. Safety and Health Requirements Manual.
- 37. EPA 340/1-90-018 (1990) Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance.
- 38. EPA 340/1-90-019 (1990) Asbestos/NESHAP Adequately Wet Guidance.
- 39. EPA 560/5-85-024 (1985) Guidance for Controlling Asbestos-Containing Materials in Buildings.
- 40. NFPA 701 (1996; TIA 96-1, 96-2) Methods of Fire Tests for Flame-Resistant Textiles and Films.
- 41. NIOSH Pub No. 84-100 (1984; Supplement 1985, 1987, 1988 & 1990) NIOSH Manual of Analytical Methods.
- 42. 8 AAC 61 Occupational, Health and Environmental Control, Toxic and Hazardous Substances.
- 43. 18 AAC 60 Environmental Conservation-Solid Waste Management.
- 44. UL 586(1996) High-Efficiency, Particulate, Air Filter Units.

2.2.4 QUALIFICATIONS

2.2.4.1 Designated Competent Person

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

The Contractor shall use properly qualified and trained personnel to perform duties as the competent person. The person selected shall have prior experience in the administration and supervision of abatement projects, including exposure assessment and monitoring, work practices, abatement methods, disposal procedures and site safety and health requirements.

2.2.4.2 Supervisors and Workers

The Contractor shall use only properly qualified and trained supervisors and workers for all abatement work. All workers and supervisors shall have current certificates of training for the level of hazardous materials work being performed.

2.2.4.3 Designated Industrial Hygienist

The Contractor shall select an independent industrial hygienist to prepare the Contractor's Hazardous Materials Abatement Plan, prepare and perform training, direct air monitoring and assist the Contractor's Competent Person in implementing and ensuring that safety and health requirements are complied with during the performance of all required work.

2.2.4.4 Independent Testing Laboratory

An independent testing laboratory shall be used to perform all testing and analysis required during hazardous materials abatement. The lab shall meet the requirements as set forth in the U.S. Army Corp of Engineers Alaska District Guide Specification, SECTION 13280, ASBESTOS ABATEMENT and SECTION 13281 (previously 02090), LEAD-BASED PAINT REMOVAL.

2.2.4.5 Citations on Previous Projects

The Contractor and all subcontractors shall provide a record of any citations and penalties received from Federal, State or local regulatory agencies relating to asbestos or hazardous materials abatement activities performed by the Contractor or subcontractor.

2.2.5 PERSONNEL PROGRAM REQUIREMENTS

2.2.5.1 Medical Requirements

Medical requirements shall conform to 29 CFR 1926.1101 for asbestos abatement work, to 29 CFR 1926.62 for lead abatement work and to other pertinent Federal, State or local requirements.

2.2.5.2 Training

Supervisor and worker training shall be in accordance with all federal state and local regulations. In addition, each worker shall be instructed by the Contractors' industrial hygienist on the specific health and safety hazards associated with the project, hazard communication program, specific work practices and controls required, security procedures and the air monitoring

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

program.

2.2.5.3 Respiratory Protection Program

The Contractor shall establish in writing and implement a respiratory protection program in accordance with 29 CFR 1926.62 and .1101, 29 CFR 1910.134, ANSI Z88.2, CGA G-7, CGA G-7.1 and the specifications.

2.2.5.4 Hazard Communication Program

A hazard communication program shall be established and implemented in accordance with 29 CFR 1926.59.

2.2.5.5 Confined Space Compliance Program

A written confined space compliance program shall be established and implemented in accordance with 29 CFR 1910.146 and with the COE Safety and Health Requirements Manual, EM 385-1-1, dated 3 September 1996. Figure 6-1 of the COE publication is a flowchart which will be valuable in helping the Contractor in the decision making process.

2.2.5.6 Personal Protective Equipment

The Contractor shall provide respirators, protective clothing and eye protection at no cost to the workers. All personal protective equipment shall meet federal, state and local requirements for the type work performed.

2.2.5.7 Hygiene Facilities And Practices

The Contractor shall establish a decontamination and shower area for the decontamination of employees, materials and equipment as required by 29 CFR 1926.62 and 1926.1101. The Contractor shall ensure that employees enter and exit the regulated area through the decontamination area.

2.2.6 Hazardous Materials Work Plan

The Contractor shall develop and submit a written comprehensive site specific Hazardous Materials Work Plan covering all abatement work to be performed by the Contractor and subcontractors. The Plan shall describe the personal protective equipment to be used, location and description of regulated areas, abatement methods, storage and disposal procedures, sampling and testing procedures, environmental controls, emergency response procedures, schedule and work coordination plans and security procedures.

2.2.6.1 Licenses, Permits And Notifications

Necessary licenses, permits and notifications shall be obtained in conjunction with the project's hazardous materials abatement, transportation and disposal actions. Timely notifications of such actions shall be furnished as required by federal, state and local regulations. The Contractor is responsible for any fees or

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

costs associated with licenses, permits or notifications.

2.2.6.2 Air Monitoring Equipment

- a) The Contractor's industrial hygienist shall approve air monitoring equipment to be used to collect samples. Pumps and sampling cassettes shall be suitable for the contaminate being sampled.

2.2.6.3 Expendable Supplies

Glove bags, disposal containers, sheet plastic and other expendable materials shall conform to the requirements of U.S. Army Corp of Engineers Alaska District Guide Specification, SECTION 13280 ASBESTOS ABATEMENT and SECTION 13281 LEAD HAZARD CONTROL ACTIVITIES.

2.2.6.4 Encapsulants

Encapsulants shall meet the requirements identified in Corp of Engineers Alaska District Guide Specification SECTION 13280 ASBESTOS ABATEMENT and SECTION 13281 LEAD HAZARD CONTROL ACTIVITIES.

2.2.6.5 Materials Safety Data Sheets

Submit Materials Safety Data Sheets (Msds) And Projected Quantities Of Hazardous Materials To Be Used On The Job Site Within 21 Days From Notice To Proceed.

2.2.7 Methods Of Compliance

The Contractor shall employ proper control and handling procedures in accordance with all applicable OSHA, EPA and DOT regulations, U.S. Army Corp of Engineers Alaska District Guide Specification, SECTION 13280, ASBESTOS ABATEMENT and SECTION 13281 (previously 02090), LEAD HAZARD CONTROL ACTIVITIES. These procedures must be clearly described in the Contractor's Hazardous Materials Work Plan.

2.2.7.1 Critical Barriers

Critical barriers shall be installed as necessary to prevent the spread of contamination to adjacent work areas or to the public. Critical barriers shall be installed as described in Corp of Engineers Alaska District Guide Specification SECTION 13280 ASBESTOS ABATEMENT.

2.2.7.2 Regulated Areas

All Class I, II, and III asbestos work shall be conducted within a regulated area. The regulated area shall be demarcated to minimize the number of persons within the area and to protect persons outside the area from exposure to hazardous materials.

2.2.7.3 Signs And Labels

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

Danger signs and tape shall be used to demarcate areas where hazardous materials work is being performed and shall be posted at work area entrances, exits, decon areas, emergency exits, and waste disposal areas. Warning labels shall be affixed to all components or containers containing asbestos or other hazardous waste in accordance with all Federal, State and local regulations.

2.2.7.4 Local Exhaust Ventilation

Local exhaust ventilation equipment shall conform to ANSI Z9.2, 29 CFR 1926.62, and 29 CFR 1926.1101. Filters on local exhaust system equipment shall conform to ANSI Z9.2 and UL 586.

2.2.7.5 Tools

Vacuums shall be equipped with HEPA filters and have sufficient capacity to efficiently collect, transport and retain asbestos or other hazardous waste. Power tools shall not be used to remove asbestos unless the tool is equipped with an integral HEPA vacuum collection system. Reusable tools shall be thoroughly decontaminated prior to being removed from regulated areas.

2.2.8 Final Cleaning And Inspection

Upon completion of abatement, the regulated areas shall be cleaned by collecting, packing and storing all gross contamination. A final cleaning shall be performed using HEPA filtered vacuums and wet cleaning of all exposed surfaces and objects in the regulated area. Upon completion of the final cleaning, the Contractor and Contracting Officers Representative shall conduct a final visual inspection of the cleaned area in accordance with ASTM E 1368.

2.2.8.1 Lockdown

Prior to removal of plastic barriers and after completing the final visual inspection requirements, a lockdown encapsulant shall be spray applied to ceilings, walls, floors and other surfaces in the regulated area.

2.2.8.2 Clearance Certification

When hazardous materials abatement and final clean up are completed the Contractor will certify in writing that the area is safe before unrestricted entry is permitted.

2.2.9 Exposure Assessment And Air Monitoring

Exposure assessment, air monitoring and analysis of airborne contaminants shall be performed in accordance with 29 CFR 1926.62, 29 CFR 1926.1101 and U.S. Army Corp of Engineers Alaska District Guide Specification, Section 13280 and Section 13281.

FY01 REPLACEMENT FAMILY HOUSING
 DACA85-01-R-0024, AMENDMENT R0005

FTW230

Exposure assessment and air monitoring shall be performed by the Contractor's independent industrial hygienist. Samples shall be analyzed by the Contractor's independent testing lab.

2.2.10 Cleanup And Disposal

All hazardous waste including contaminated filters, scrap, containers, equipment and clothing shall be placed in proper disposal containers for disposal. All asbestos waste shall be disposed of at the Fort Wainwright asbestos landfill in accordance with 40 CFR 61, State, and Fort Wainwright procedures. Lead contaminated waste and other hazardous waste must be handled, stored and transported in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, Army Regulation 200-1, and Fort Wainwright Pamphlet 200-1. All regulated waste generated on Fort Wainwright shall be turned over to the Fort Wainwright Directorate of Public Works, Environmental Resources Office (PWE) waste turn-in Contractor for disposal.

2.3 Civil Design Criteria

2.3.1 References

- a) The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. If dates are not given for reference standards or criteria, the latest edition is to be used.
- b) Construction shall be in accordance with the following codes, standards, and regulations. The most stringent shall govern when discrepancies occur.
 1. MIL-HDBK-1190 Facility Planning and Design Guideline.
 2. Uniform Federal Accessibility Standards, (UFAS); Federal Register. (FED-STD-795).
 3. EM 385-1-1, U.S. Army Corps of Engineers Safety and Health Requirements Manual.
 4. MIL-HDBK-1008C, Fire Protection for Facilities Engineering, Design, and Construction.
 5. National Fire Protection Association Fire Codes (NFPA).
 6. Cold Climate Utilities Manual, Canadian Society for Civil Engineering, 2050 Mansfield Street, Montreal, Quebec H3A 1Z2.
 7. Standard Specifications for Highway Construction State of Alaska, Department of Transportation and Public Facilities.
 8. TM 5-822-2, July 1987, General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas.
 9. TM 5-822-5, June 1992, Pavement Design for Roads, Streets, Walks, and Open Storage Areas.
 10. TM 5-820-4, Drainage Areas for Other than Airfields.
 11. TM 5-813-1, Water Supply, Sources and General Considerations.

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

12. TM 5-813-5, Water Supply, Water Distribution.
13. TM 5-814-1, Sanitary and Industrial Wastewater Collection Appurtenances.
14. TM 5-814-2, Sanitary and Industrial Wastewater Collection - Pumping Mains and Force Mains.
15. TM 5-181-1, Soils and Geology Procedures for Foundation Design of Buildings and Other Structures (other than Hydraulic Structures).
16. 18 AAC 72, State of Alaska, Department of Environmental Conservation (ADEC), Wastewater Disposal.
17. 18 AAC 80, State of Alaska, Department of Environmental Conservation (ADEC), Drinking Water Regulations.
18. FTW Standard Operation Procedures (SOP) for Waste Disposal and Borrow Pit Operations.
19. FTW Utilidor Design Checklist (see Appendix 14)
20. Hazardous Materials and Waste Management Plan (HMWMP) for FTW.
21. Contractor Guidance For Preparing and Executing Storm Water Pollution Prevention Plans, ADOT&PF 2nd Edition 1993.
22. Geotechnical Findings Report for FTW230, FT. Wainwright, Alaska, dated March, 2001 (see Appendix 4).
23. FTW Utility Maps (see Appendix 3).

2.3.2 Minimum Requirements

The Design-Build Contractor's Civil Engineer(s) of Record shall be responsible for the civil design. Complete civil design shall generally include site work, earthwork, grading and drainage, roads and parking, utilities, and coordination of any architectural, mechanical, and electrical site features although they may be shown on other disciplines' drawings. The civil design drawings and calculations shall be sealed by the engineer in responsible charge. The engineer shall be licensed as a civil engineer in the State of Alaska.

2.3.3 Scope and Objectives

- a) Site work shall consist of the complete design and construction of building site earthwork and grading, access roadways, parking areas, AC pavement sections, curbs and gutters, pedestrian walks, site utilities, fire protection requirements, security/lighting provisions, site drainage, and landscaping. The facility shall be completely usable with utility connections and other amenities as described in this document.
- b) Design shall take into consideration topography and natural characteristics of the area, including climatic conditions, prevailing winds, areas of snow accumulation, etc. It shall be the Contractor's responsibility to protect existing features, which include roads, utilidors, trees, sidewalks, paving, curbs, and similar items not in the contract work limits, which if damaged by the Contractor

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

shall be replaced, in kind at no cost to the Government. Site work and utility designs shall provide a functional development requiring only routine maintenance through its design life. Emphasis shall be placed on positive drainage, separation of dissimilar soil materials, and minimizing heave and subsidence. Site planning, development and the Contractor's operations shall at all times take into consideration that other facilities bordering the site must remain fully operational during the performance of the work.

2.3.4 Arctic Climate

- a) Arctic conditions exist at the Project Site. Discontinuous permafrost is common in this region of Alaska. Winter temperatures in the range of -10 degrees C to -40 degrees C are common for extended periods every winter, and temperatures of -50 degrees C are periodically experienced for periods of several days.
- b) Snow begins accumulating in late September and early October and does not begin to melt until April/May. It is common to have one meter of snow cover through mid May. The design analysis shall include written descriptions, accompanied by calculations as necessary, to show that all elements of the Civil Design are designed according to the principles and procedures of the Cold Climate Utilities Manual.

2.3.5 Topographic Survey

The Project Site survey data of the proposed site location that shows the topography, streets, utilities, and other surface features. The Contractor shall review and field verify the topographic survey information and be responsible for all additional survey(s) required to complete requirements of these documents.

1. Project Survey Control. Survey monuments listed on the survey shall be used as the horizontal and vertical reference control points for work performed by the Contractor.
2. Protection of Monuments. Existing survey monuments shall be protected during construction from movement and damage. Damaged monuments shall be replaced, to the original order of survey accuracy, at no cost to the Government.

2.3.6 Fire Protection

Adequate fire hydrants exist at the project site. Contractor shall remove and replace two (2) of the existing fire hydrants with new hydrants at the corner of 100th Street and Dogwood Road and near the corner of Dogwood Road and 103rd Street, or at the locations directed by the Contracting Officer. Replacement hydrants shall include hydrant, barrel, shoe, and shut-off valve. New hydrants shall be Kennedy or Waterous (both are FTW preferred

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

brands).

2.3.7 Force Protection

The site requires force protection as described herein and per Force Protection requirements (see appendices):

1. Eliminate locations of concealment. Any recessed areas, concealed spaces, and landscape features on the exterior of the building shall be designed with security in mind. This includes well-lit alcoves, groupings of trees and shrubs, and avoidance of large objects in the landscape, etc. Creativity and common sense are required to provide interesting visual features while still providing a safe, accessible and secure environment.
2. Provide lighting that focuses away from the facility and minimizes shadow areas.
3. Utilidors shall be constructed such that no person may enter the building or reach the area beneath the buildings via the utilidors.
4. Trash receptacles and dumpsters shall be located at least 25 meters (80 feet) from any building element.
5. There shall be no external access, ladder or stairs to the roof of the building.

2.3.8 Site Layout and Design

- a) Requirements described herein and further defined in MIL-HDBK-1190 Facility Planning and Design Guideline Facility Design Guide, Uniform Federal Accessibility Standards, TM 5-822-2, TM 5-8225, TM 5-820-4 or the latest revised editions to these Technical Manual's shall be incorporated into the design. The site layout and design shall meet the minimum provisions of all applicable references outlined in Section 2.3.1 above.
- b) The Contractor shall confine proposed development to the project area as designated in these RFP documents.
- c) The limits of the project site are shown on the Site Topographic Survey, C-1 through C-4 in Appendix 2.
 1. Site improvement locations and configurations shall conform to the general requirements as described herein these RFP documents. The site and first floor (ground level) of buildings indicated shall be made handicap accessible in accordance with Uniform Federal Accessibility Standards.
 2. Protect existing utility lines when new pavements are constructed above them. When the depth of cover over utilities, structural load, or thermal regime is changed, the utilities shall be redesigned for the altered conditions. New underground utility lines (including utilidors, manholes, vaults, etc.) shall not be located under roads, streets, parking areas or drainage ditches, unless there is no practical

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

alternative, and the Contracting Officer provides written approval.

2.3.9 Geotechnical

- a) The Design-Build Contractor's Geotechnical Engineer of Record shall be responsible for preparing design recommendations. The foundation recommendation report shall be sealed by the engineer in responsible charge and shall be licensed as a civil engineer in the State of Alaska.
- b) A geotechnical findings report for this project has been provided by the Government, see appendices. It shall be the Contractor's responsibility to provide any additional fieldwork deemed necessary. The Contractor shall verify all Government-furnished information. It is the Contractor's responsibility to investigate the subsurface soil conditions, ground water table and soil resistivity, etc. and obtain adequate geotechnical data to determine utility installation, trench sections and transition requirements, soil bearing capacity, foundation design, consolidation/settlement criteria, roadway or parking structural sections, trench dewatering, waterproofing design, footing design, caisson design and all other necessary site work geotechnical criteria to provide project requirements.
- c) Surface runoff that enters excavations may become contaminated if soils are contaminated. Dewatering of surface runoff from excavation shall include sampling and testing and treatment as required.
- d) Design and Analysis. The Contractor shall prepare a geotechnical design analysis for all work performed for this project. The geotechnical design analysis shall be submitted for review with the 35% design submittal. The analysis shall include evaluation of soils and liquefaction, bearing capacity analyses, settlement calculations, lateral earth pressures, temporary and permanent dewatering designs, foundation design, analysis of the effects of arctic climate including frost transition recommendations. Design shall be in accordance with TM 5-818-1 TM 5-822-5, the Cold Climate Utilities Manual, followed by other references of choice. Organize the design analysis into Sections:
 - 1. Site: Overall geotechnical analyses of the project sites.
 - 2. Buildings: Analysis and design of each foundation type for each building.
 - 3. Utilities: Analysis and design for each utilidor and buried utility system.
 - 4. Traffic systems: Analysis and design for each type of traffic system, i.e., street, parking area, sidewalk, culvert, etc.

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- e) Final Geotechnical Report. The Contractor shall submit three copies of the final report, in booklet form, to the Contracting Officer. The final report shall be stamped and sealed by the Contractors Geotechnical Engineer. The report shall include:
 - 1. The Contractors Geotechnical Design Analysis.
 - 2. Field Screen Information. Include the SAP, an explanatory narrative of the work performed, observations, typical photos, map showing the location and type of test(s), and a table of field screening and other test results that is updated as work proceeds.
 - 3. Compaction Test Plan and Data.
 - 4. Calibration of Equipment. List of equipment, copies of calibration curves and results of calibration tests for each, and observations on the correlation between field and laboratory tests results.
- f) Earthwork. Clean granular soil material from excavation that is in-excess-of project needs shall be transported and disposed of on-Post in accordance with the FTW SOP for waste disposal and borrow pit operation. All other debris shall be disposed of according to Paragraph, Disposal of Solid Wastes. All liability of any nature resulting from the disposal of the materials shall be the responsibility of the Contractor. The Contractor is cautioned on the use of Ft. Wainwright Badger Pit as a borrow source. Quality and quantity of the material obtained from the pit is not guaranteed, and coordination with other Contractors for access to the pit may be required.
 - 1. Borrow Source: To request authorization to use on-Post waste disposal and borrow pit areas, the Contractor shall submit a letter request to Contracting Officer, no later than at the 35 percent design review package. Contractor shall comply with all aspects of the FTW SOP for borrow pit operations.
 - 2. Non Government Borrow Sources: The Contractor shall check any non-Government, proposed borrow sources for the presence of hazardous substances and petroleum products as defined in ASTM E1527. The publication includes guidance on previously examined sites. A Phase I Environmental Site Assessment, also defined therein, shall be submitted for each proposed borrow site as a supplement to the Environmental Protection Plan specified in SECTION 01411 ENVIRONMENT PROTECTION. The report shall identify any previous or current presence of hazardous substances at the site, regardless of whether they have been, or can be, released to the environment. The Assessment shall be performed under the direct supervision of an independent, registered professional engineer, currently licensed by the state in which the borrow source is located, and within such time frame as will ensure reports are valid when performing satisfactory Environmental Site Assessments. All reports shall be

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

certified in writing by the engineer and submitted in the standard format specified in the referenced publication, through the Contracting Officer, to the Base Environmental Office for review. Reports shall be submitted at least 30 days prior to needing borrow materials in the work. The qualifications of the engineer performing the Assessment shall be included with the report. Where hazardous materials are indicated, use of the source will not be allowed. No borrow materials shall be brought onto Government property without approval of the Contracting Officer. The Government reserves the right to sample and test any borrow materials delivered to the project for conformance with this specification.

3. Materials. Shall be classified in accordance with the Unified Soil Classification System and compaction efforts shall be specified by ASTM standards.
 4. Structural Fill and Backfill. Soil material used as structural fill and backfill shall be well-graded non-frost susceptible materials consisting of sand, gravel, broken stone, or similar material and containing not more than 60 percent by weight passing the No. 4 sieve. All material shall be free of frozen lumps. Material shall not exceed a size equaling 2/3 of the specified maximum lift thickness. Non-frost susceptible soils are inorganic soils containing less than three percent by weight of grains finer than 0.02 mm. The methods of test used shall be the ASTM C 117, ASTM C 136, ASTM D 75, and ASTM D 422.
- g) Contaminated Soils. The Contractor shall provide field screen soil sampling throughout the duration of excavation activities to determine contamination is present in the soils. The Sampling and Analysis Plan (SAP) shall include the Field Sampling Plan (FSP) and the Quality Assurance Program Plan (QAPP). The Contractor shall immediately notify, by writing and phone, the CO and the Ft. Wainwright DPW if contamination is discovered. The Post Environmental Office shall be responsible for providing notification to ADEC.
1. Sampling and Analysis Plan (SAP). The Contractor shall prepare and submit a Sampling and Analysis Plan (SAP) to the Contracting Officer for approval. The SAP shall reflect the degree of complexity of the project and shall be composed of a Field Sampling Plan (FSP) and a Quality Assurance Program Plan (QAPP). The plans shall include method to be used for field screening and frequency of sampling. Field screening shall be utilized according to prudent, professional judgement. The Contractor shall exercise a high degree of control over field screening in conjunction with construction in order to adequately screen for POL contaminated soil.
 2. Equipment. The Contractor's shall use a Hydrocarbon Vapor (HV) test or other appropriate field test to

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

qualitatively check for the presence or absence of soil contamination where visible stains are not apparent. The Contractor shall include in the SAP a description of the type of instruments selected, limits, action levels, procedures for testing, and the consultant's training to use the instruments and to interpret the data.

3. Excavation and Handling of Contaminated Material. Screening of excavated soil shall be conducted during all excavating activities. Field screening shall be performed in accordance with the approved Sampling and Analysis Plan (SAP). If field-screening results indicate contaminated soils exists in the excavated material or is remaining in the excavation, additional field screening tests shall be used to delineate the boundary between clean soils and contaminated materials.
4. Contaminated Soil Identification and Removal. When contaminated soils are identified by visual inspection, field screening, or commercial laboratory testing, confirmation shall be accomplished through Contractor quality control (QC) samples and government quality assurance (QA) samples. QA and QC duplicate samples shall be collected at a rate of at least one per every ten non-duplicate samples collected. QC samples will be submitted as blind duplicates to the Contractor's laboratory. QA samples will be submitted to an independent laboratory selected by the Government.
5. The Contractor shall provide for the collection, analysis and reporting of one (1) sample per 50 cubic meters of suspected contaminated soil. The samples shall be as follows:

GRO by AK101, DRO by AK102, RRO by AK 103, and benzene, toluene, ethyl benzene, and xylenes by AK101/8021.

6. Classification of Soil Contamination:. Soils shall be classified as clean if they meet the following limits:

Less than 100 ppm DRO by Alaska Method AK102
Less than 50 ppm GRO by Alaska Method AK101
Less than 0.02 ppm Benzene by Alaska Method AK101/8021
Less than 5.4 ppm Toluene by Alaska Method AK101/8021
Less than 5.5 ppm Ethyl benzene by Alaska Method AK101/8021
Less than 78 ppm Xylene by Alaska Method AK101/8021
Less than 10 ppm Total BTEX by Alaska Method AK101/8021
Less than 100 ppm Lead by EPA Test Method 7421
Less then 2000 RRO by Alaska Method AK103, and
Less than 10 ppm PCBs by SW 3540/SW 8081A

7. Soil Contamination Levels. The Contractor shall not

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- dilute or mix excavated soil to reduce contamination. Excavated soil shall be carefully evaluated and determined to be clean or contaminated.
8. Contaminated Soil Disposal Requirements.
- i. Contaminated soil shall be transported to a Government-provided on-Post location (south of Building 3584) for the stockpile. The stockpile shall be constructed as "long term" stockpiles in accordance with 18AAC78.311 in segregated 382 cubic meter (500 cy) increments. Soil remediation is not required under this contract.
 - ii. The Contractor shall be responsible for hauling contaminated soil to the stockpile location, stockpiling it at the proper location, and conduct tests as specified. The Government will be responsible for maintaining the stockpile in accordance with ADEC regulations after the material is properly stockpiled.
 - iii. Stockpiled soil shall be sampled in accordance with State of Alaska requirements for stockpile sampling at the rate of one (1) sample per 76.4 cubic meters (100 cy) of stockpiled soil. The analysis program shall be determined during the preparation of the SAP, and shall include the parameters needed for the Government to obtain ADEC approval for thermal processing of the soil.
 - iv. Transport of contaminated soils will be conducted in accordance with applicable DOT and Fort Wainwright requirements to prevent leakage of contaminated materials from the trucks. All truckloads of contaminated materials shall be covered during transport. Any spills during transport shall be promptly picked up and the affected area cleaned.
- h) Geotechnical Testing. Compaction tests, gradation, and non-frost susceptibility tests shall be performed on each layer of compacted material placed. Testing shall be the responsibility of the Contractor and shall be performed by a Corps of Engineers approved independent testing agency. The Contractor shall remove and replace nonconforming materials and shall recompact and retest failed and replaced areas until the specified degree of compaction is obtained. The Contracting Officer may direct that the tests be taken at locations other than those shown on the submitted compaction test plan and that additional tests be taken to supplement these required tests.
- 1. Calibration of Equipment. Provide the manufactures recommended calibration procedures for each piece of test equipment.
 - 2. Compaction Test Plan and Data. The Contractor shall submit the initial compaction test plan to the Contracting Officer prior to beginning earthwork activities on the work item. Plan and Data shall include:

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- i. Compaction Test Plan. Shall show the exact location of each test. This plan shall be keyed to the test results.
 - ii. Test Record. The record of each test shall reflect the type of test procedure(s), the firm or person that performing the test, the project title and contract number.
 - iii. Test Results and other Data. Log and compile the results of each test and any observation made, and for compaction tests, the volume or unit weight of the standard, and the volume or unit weight of the compacted soil.
 3. Type and Frequency of Tests. Characteristics of backfill materials shall be determined in accordance with particle size analysis of soils ASTM D 422 and moisture-density relations of soils ASTM D 1557. A minimum of one particle size analysis and one moisture-density relation test shall be performed on each different type of material used for bedding and backfill. The area referred to hereinafter which determines the minimum number of tests required shall be an area that is compacted in one continuous operation.
 - i) Structural (Type 1) Compaction Tests. The following density tests are required beneath structures with on-grade concrete floor slabs and footings and slabs. The number of tests shall apply to each layer of material placed.
 1. Compacted Area: 50 square meters or less. A minimum of two tests or one test for each 12 square meters of area, whichever will provide the greatest number of tests.
 2. Compacted Area: Between 50 square meters and 360 square meters. A minimum of four tests.
 3. Compacted Area: 360 square meters or greater. One test for each 90 square meters of area.
 - j) Structural (Type 2) Compaction Tests. The following density tests are required beneath footings for structures with elevated floors (crawl space) and structures where the compaction requirements beneath footings and floor slabs vary. The number of tests shall apply to each layer of material placed.
 1. Continuous Footings: One test for each 15 meters of continuous footing for walls over 30 meters long or a minimum of two tests per wall, whichever provides the greatest number of tests.
 2. Column Footings: One test per footing.
 - k) Utility Systems Compaction Tests. The number of density tests required for backfill in utility trenches shall conform to the following:
 1. Bedding Layers under Utilities: One test per 60

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- 2. Trench Backfill in Graded Areas: Minimum of two tests per layer or one test per layer for each 90 meters of trench, whichever provides the greatest number of tests.
 - 3. Trench Backfill in Traffic Areas: Minimum of two tests per layer or one test per layer for each 30 meters of trench, whichever provides the greatest number of tests.
- l) Roadway, driveway, and parking area (Size 1) Compaction Tests. The number of density tests required for roadways and driveways up to 90 meters in length, and parking areas up to 550 square meters, shall conform to the following requirements for each layer of material placed:
- 1. Subbase and Base Course: A minimum of two tests or one test for each 20 meters of length or each 140 square meters of area, whichever provides the greatest number of tests.
 - 2. Subgrade: A minimum of two tests or one test for each 30 meters of length or each 200 square meters of area, whichever provides the greatest number of tests.
- m) Roadway, driveway, and parking area (Size 2) Compaction Tests. The number of density tests required for roadways over 90 meters in length and parking areas over 550 square meters, shall conform to the following requirements for each layer of material placed:
- 1. Subbase and Base Course: A minimum of four tests or one test for each 45 meters of length or 280 square meters of area, whichever provides the greatest number of tests.
 - 2. Subgrade: A minimum of four tests or one test for each 60 meters of length or 370 square meters of area, whichever provides the greatest number of tests.
- n) Gradation and Non-frost Susceptibility Tests. Tests shall be conducted on structural soil materials for structures, utility systems, and roadways, driveways, and parking areas. In-place structural soil materials shall be sampled and tested for gradation and non-frost susceptibility requirements at least once for every 75-compacted-cubic meters or portion thereof. For these tests, gradation shall be determined in accordance with ASTM C 136, with ASTM C 117 used to determine minus No. 200 sieve material and ASTM D 422 used to determine minus 0.02 mm materials.

2.3.10 Site Grading and Storm Drainage

- a) Requirements described herein and further defined in TM 5-822-2 and TM 5-820-4 shall be incorporated into the design:

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

1. Building Finish Floor Elevation. The Contractor shall establish the finish floor elevation of buildings to provide positive drainage away from the building. The main (front) entrance and approach shall be sloped to meet Uniform Federal Accessibility Standards and provide positive drainage away from the building.
2. Site Grading. Finish grade adjacent to the building shall be 150 mm below the finish floor elevation. Site grading, parking lot, etc., shall be sloped to drain to the existing ditches. Drainage slopes away from the building shall be a minimum of 5.0-percent for a horizontal distance of 3 meters, and be graded 2.0-percent slope thereafter to existing and/or new (as necessary) drainage outfall collection point(s). Open areas, away from the building, shall also be graded 2.0-percent slope to the existing drainage outfall system. Banks of earthwork cuts or embankments, ditches, etc, shall not be steeper than one (1) meter vertical in three (3) meters horizontal. The preferred slope for permanent banks and ditches is one (1) meter vertical in four (4) meters horizontal. Optimum desired slope for site grading is 2-percent. Minimum slope is 1.0-percent.
3. Storm Drainage Design. New site drainage shall maintain predominant existing drainage patterns. Building site is not located within the 100-year floodplain. Storm drainage calculations, including runoff from adjacent properties, and discharge volume shall be based on a 10-year storm event. Additional ditches and culverts shall be provided on the site as necessary for positive drainage. Areas experiencing consolidated flow, roof drain outlets, roof drip lines, parking lots, drainage swales, etc. shall be designed with features to prevent erosion.
 - a) Existing Drainage System. The Post storm drainage system is comprised of open grass lined ditches and culverts.
 - b) Contaminated Water. The design shall provide for collection and treatment of runoff from snow storage areas and from paved areas. The major concern is vehicular oils and sediment load. The design shall include calculations and references' showing the method of treatment provided is adequate.
 - c) Construction Period. Runoff from within the project boundaries, during construction of the project, shall be the responsibility of the Contractor, including all NPDES permits (as necessary) or requirements. Silt laden or other environmental degrading waters shall be collected and treated prior to discharge from the project site to existing drainage system.
 - d) Preferred Methods. The preferred method of handling rain and snowmelt is overland gravity

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

flow to grassy swales and collection ditches for filtering. The preferred method of treating runoff from parking lots and snow storage areas is allowing flow through grassy areas (land treatment). Runoff from roof drains and gutter collections systems must be directed away from buildings without causing winter glaciating or erosion.

- e) Stormwater Pollution Prevention Plan. Contractor shall prepare and submit to ADEC for review a SWPPP and conduct all construction activities in accordance with the approved plan. The plan shall, as a minimum, include the following items: methods for clearing/grubbing, temporary erosion and sediment control measures, Best Management Practices (BMP's) on-site, excavation/embankment construction, temporary and permanent drainage features, haul roads/material stockpile sites, construction in and around water bodies/existing drainage features, containment control, cleanup and disposal methods of petroleum products or other hazardous substances generated by construction equipment or activities. Contractor is responsible for all fees associated with the NPDES, SWPPP, and ADEC review and permits.

2.3.11 Vehicular Traffic Systems

- a) General Design. Includes access roadways, driveways and parking areas. The Contractor shall layout traffic improvements to be functional to the users, with strong emphasis on safety. Traffic systems shall be designed and constructed to the provisions of MIL HDBK-1190, and to provide accessibility for the handicapped in accordance with Uniform Federal Accessibility Standards. The geometric layout and pavement section of each type pavement or traffic system shall be designed in accordance with TM 5-822-2 and TM 5-822-5.
 - 1. All roadway areas shall be cleared and stripped to clean material that is free of organic materials and other debris. The pavement section for access roads shall be designed in accordance with TM 5-822-5.
 - 2. Intersections. As applicable, design all intersections to local standards.
 - 3. Asphalt Surfacing. All roadways, driveways, parking stalls, and circulation areas shall be asphalt surfaced. Pavement structural section shall be designed for HS20 highway loading. All materials used in AC Pavement and PCC sidewalk shall conform to the requirements of the State of Alaska 1988 Standard Specifications for Highway Construction and any applicable Federal, AFM, and MIL-HDBK-1190 requirements. Layer thickness shall be according to the geotechnical design, however, the thickness of

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- the base course layer shall be no less than 100 mm and the thickness of asphalt layer shall be no less than 75 mm. Base course material shall have less than 3 percent fines smaller than 0.02 mm.
4. Transverse Gradients. Roads and parking areas shall have gradients in accordance with TM 5-822-2 and TM 5-822-5. Gradients shall not exceed a maximum 3.0 percent slope due to winter ice conditions and in no case be less than 0.5 percent, to avoid ponding.
 5. Provide curbs and gutters along new streets.
 6. Pavement Markings. Pavement shall be marked according to ADOT Standard Specifications for Highway Construction. Handicapped painted symbols and signage will be required at all barrier-free parking spaces.
 7. Snow Removal and Storage. Snow removal and convenient storage shall be considered in the design and layout of all roadways, parking and sidewalks. Snow removed from access roadways, parking lots, and sidewalks shall be stored on site. Grader and front-end loaders are used to remove snow. Snow storage shall be convenient to the removal area without excessive haul distances. Provide adequate storage for a heavy snow year assuming a maximum seasonal snow depth of 3 meters on all streets, driveways, walks, and parking lots.
- b) Street Requirements: Site improvements include a new street extension of Chestnut Street between 100th Street and 102nd Street.
- New streets shall be a minimum of 9.14 meter (30 feet) in width measured from back of curb. Site improvements shall be in conformance with MIL-HDBK-1190 and applicable TM 5-822 chapters.
- c) Parking areas for all vehicles shall be paved. Headbolt heater outlets shall be provided for all parking spaces.

2.3.12 Pedestrian Traffic Systems

Design and geometric layout shall be in accordance with TM 5-822-2. Facility shall provide accessibility for the handicapped in accordance with Uniform Federal Accessibility Standards. Provide concrete sidewalks for access to the buildings. Consider both vehicular and pedestrian circulation in design of pedestrian traffic systems.

1. Sidewalks. Concrete sidewalks shall extend from all building entrances to the respective units driveway. Sidewalks shall be a minimum of 1220 mm wide except where handicapped access requirements dictate greater width. Transverse slope of sidewalks shall be 2.0 percent minimum and 3.0 percent maximum, except where requirements for handicapped access govern.
2. First Floor Access. Provide barrier free access to the first floor of indicated buildings.

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

2.3.13 Utilidor System

- a) Before beginning work, the Contractor shall become familiar with all existing utility systems, to verify the location of existing utilidors and other information shown on exhibit drawings. The Contractor is responsible for supplementing government provided information as necessary to design and construct new work. All new utilities, including water, fire protection, sewer, steam, and condensate piping located exterior to buildings shall be constructed in utilidors.
- b) Asbestos Material. The existing utilidor and manholes are considered confined spaces and are asbestos contaminated environments. New work will require demolishing existing utilidors, breaking out a section of existing manhole and/or utilidor walls, constructing new manholes and utilidors, and connecting new piping to existing systems. The Contractor shall review the Hazardous Material Report, and refer to Section 2.2 for requirements for asbestos remediation in the areas of existing utilidor system that will be impacted by new work. The Contractor shall perform the necessary measures to ensure that new work is performed in accordance with all Federal, State and Local regulations concerning working within, or remediating asbestos contaminated areas of new work. Work in the utilidor shall be limited to the minimum area necessary to perform new work.
- c) Construction of a semi-permanent plywood barrier in the existing utilidors will be required to separate asbestos contaminated utilidors from new or abated sections to prevent contamination. Construction of barriers will need to address drainage through utilidors and egress of personnel from utilidor to manholes.
- d) Utilidors: New service utilidors from the existing main utilidor to each building's mechanical room will be required. The existing utilidor system contains water, sewer, high-pressure steam and condensate return utility services.
 - 1. All mainline utilidor extension shall include a looped water, steam, and condensate line to prevent stagnation of water in the supply main and to provide heat for the utilidor system. The existing water, sewer, and steam utility delivery system shall be analyzed for capacity based upon new loads required by the construction of this project. Up sizing of the existing utilities may be required under this projects scope of work. The Contractor shall be responsible for analysis, design, and construction of all mainline extensions and/or increases in utility sizes as required by the new construction. All new utility sizes shall be at least the size of existing, no downsizing will be allowed.

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

2. The concrete service utilidor shall be sized to accommodate different piping arrangements, ditch or road crossings, or any other constraint. All utilidors shall have removable lids and be of watertight construction. All utilidors shall be buried.
3. Utilidors shall have constant slope between manholes for drainage. The Contractor shall use extreme caution when forming and placing inside edge and top of walls to provide smooth even surfaces to accommodate utilidor lids, as it is critical to providing a watertight system. The floor of the utilidor shall be flat without gutters or drainage channels. No structures and/or appurtenances shall be supported from the utilidor tops. Lids shall be sized so the weight is less than 1,800-Kg and shall have non-deformed lifting loops or eyes of ASTM A 36 galvanized steel unless a stronger steel or superior finish is required. Provide a 3/4" thick x 4" wide layer of fibrous plastic roof coating (ACE Hardware product #17897 or equal) and 2 rows of oakum type filler material pressed into the mastic between wall and removable lid. The finished grade in the vicinity of the utilidor shall have sufficient slope to prevent ponding and to transport water away from the utilidor. The below ground exterior of all concrete manhole and utilidor side and tops shall be waterproofed.
4. Traffic Areas. Utilidor and lids shall be designed for HS-20 traffic loading in all vehicle traffic areas. Where utilidor crosses through paved traffic, parking or other structural improvement area, Contractor shall provide a trench excavation frost transition section to mitigate potential soil discontinuity and differential heave/settlement issues. Contractor shall include all frost transition recommendations in the Geotechnical Design Analysis.
5. Coordinate with FTW and applicable TM requirements. Utilidors in traffic areas shall have a 150 mm thick layer of 275-kPa (minimum) (40 psi) compressive strength insulation placed above the utilidor lid. The insulation shall extend 1.5 meters (minimum) beyond the outside edge of the utilidor on each side of the utilidor.
6. Utilidor/Building Cut-Off Wall. The utilidor shall be completely blocked off (flush with the interior surface of the Mechanical Room) where the utilidor enters a building. The wall shall be constructed of concrete block or cast-in-place concrete. Pipes shall pass through cut-off walls with pipe sleeves. Sleeves shall be of size to provide a minimum of 6 mm clearance all-around between bare pipe and inside of sleeve or between jacket over insulation and sleeves. Sleeves shall be steel pipe, cast-iron pipe, or ductile iron pipe. The wall shall be steam-tight, no weep holes or open spaces shall pass through the

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- cut-off wall.
7. Thermal Analysis and Insulation. Steam and condensate piping are the heat source for the utilidor. Insulate piping and utilidor to maintain an interior temperature between 5 degrees C and 35 degrees C for the range of exterior air temperatures in Paragraph 2.3.4, Arctic Climate. Insulate water piping to prevent temperatures rising above 5 degrees C at the average daily flow rate. Provide two dimensional heat loss analyses for each different size of utilidor and different condition such as ditch crossings, traffic areas, non-traffic areas, etc. Utilidor insulation shall be placed on the exterior of the utilidor sufficient to maintain the thermal conditions specified.
 8. Winter Heating Requirement. The Contractor shall heat the new utilidor system (including manholes), or any existing utilidor when they are subject to freezing temperatures, or when the normal thermal regime is altered by new work. Utilidor sections or manholes shall be heated such that the minimum interior air temperature is 5 degrees C. at all locations.
 9. Utilidor Dimensions.
 - a) Service Utilidor minimum interior dimensions - 1,000 mm wide and 1,000 mm high or as required for piping.
 - b) Main Utilidor minimum interior dimensions - 1,500 mm wide and 2,000 mm high or as required for piping.
- e) Manholes. Minimum requirements for new manholes are as follows:
1. General Construction. New manholes shall be reinforced concrete type. Manholes shall be watertight. The maximum distance between utilidor manholes shall be 60 meters. Utilidor manholes shall be constructed at locations wherever the utilidor changes in cross sectional dimension or floor gradient. Manholes shall not be located in traffic areas or ditches.
 2. Manhole Dimensions, Access Hatch and Ladder. Manhole shall be sized to provide a minimum of 600 mm of clear space between the edge of manhole and pipe components. Size manhole to provide sufficient room for maintenance, removal, and movement of equipment. There shall be adequate space to move equipment to a location directly below the access hatch without dismantling other pipe system components.
 - a) Provide an access hatch having 1,000 mm (minimum) clearance in each dimension.
 - b) Frames and covers shall be of the solid lid type and have a minimum masonry contact of 75 mm overlap. Frames and covers shall be

FY01 REPLACEMENT FAMILY HOUSING
DACA85-01-R-0024, AMENDMENT R0005

FTW230

- proof-load tested 450-kg loading.
- c) Hatch covers shall be a one or two lid style with external (non-recessed) butt-type hinges securely attached to the frame that shall not work loose under repeated opening and closing of the lids. Lids shall have fixed protruding handles (non-recessed) with a minimum clear hand opening of 125 mm by 65 mm And have chains or other positive means to prevent lids from slamming open and loosening hinges.
 - d) Ladder shall be constructed of straight-type steel that is not less than 400 mm in width with 20 mm diameter rungs spaced 300 mm apart. Bar side rails shall be 50 mm by 12 mm steel. The ladder shall be adequately anchored to the wall by means of steel inserts spaced not more than 1,750 mm apart vertically, and shall be installed to provide at least 170 mm of toe space between the wall and the inside of the rungs.
3. Sumps and Pump. Provide sumps that have a minimum size/volume of 600 mm deep by 600 mm diameter in each manhole. Provide sump pumps with a minimum capacity of 40-l/min. Sump pumps shall be of the submersible type capable of operating while completely submerged and shall be electrically driven with a cord and plug connection to power. The pump and motor shall be capable of pumping liquids at a temperature of 95 degrees C. The motor shall have sufficient power for the service required, and shall be furnished complete with overload protection. A submersible switch assembly shall automatically control the pump. Wiring from switch to pump shall be waterproof type cord suitable for submersion in 95 degrees C liquids. Provide an independent float level to indicate emergency high level to be connected to an emergency warning light mounted on the manhole. The warning light shall be mounted to be visible from the road on a 100 mm diameter pipe securely attached to the manhole top. The on-off levels shall be set according to the manufacturer's recommendations.
4. Vents. All manholes shall have a natural convection style vent system designed that is comprised of two vent pipes located in diametrically opposite corners. Vents shall be 200 mm (minimum) diameter steel pipes coated for corrosion protection. One vent pipe shall terminate approximately 150 mm below the manhole ceiling; the other shall terminate approximately 300 mm above the manhole floor. Vent pipes shall be adequately capped, rise to 1,000 mm above the normal level of snow accumulation, and be designed for the expected interior and exterior temperatures.
5. All equipment requiring inspection or maintenance including but not limited to expansion joints, isolation valves, blow downs, and clean-outs shall be located in manholes.